Amendments to the Claims

1. (currently amended) A method of fabricating an optical fiber laser, the method comprising:

~~the step of~~ exposing an optical fiber to a transverse writing light beam to form a DFB grating structure in a section of the optical fiber, the writing light beam being polarized in a direction not parallel to the axis of the section of the optical fiber so that the induced grating structure has a different grating strength for two orthogonal polarization modes of the optical fiber; and [[,]]

moving at least one of the optical fiber and the writing light beam between each exposure;

wherein the grating structure has ~~comprising~~ a discrete phase shift which is substantially identical for the two orthogonal polarization modes and the grating structure is formed without tuning of the discrete phase shift.

2. (previously presented) A method according to claim 1, in which the writing light beam is polarized in a direction substantially perpendicular to the axis of the section of the optical fiber.

3. (previously presented) A method according to claim 1, in which the writing light beam is an ultraviolet beam.

4. (previously presented) A method according to claim 3, in which the ultraviolet beam has a wavelength of about 244 nanometers.

5. (previously presented) A method according to claim 1, in which the optical fiber section is doped with at least one amplifying dopant.

6. (previously presented) A method according to claim 5, in which the optical fiber section is doped with at least one rare earth element.

7. (previously presented) A method according to claim 6, in which the optical fiber section is doped with erbium and ytterbium.

8. (previously presented) A method according to claim 1, wherein the optical fiber laser is stressed to provide substantially single polarization operation.

9. (previously presented) A method according to claim 1, wherein the optical fiber laser is stressed to provide dual polarization operation.

10. (previously presented) A method according to claim 1, wherein the grating structure is written as a Moire phase shifted structure to provide lasing operation at two wavelengths having one polarization.

11. (previously presented) A method according to claim 1, wherein the grating structure is written as first and second overlaying DFB grating structures to provide lasing operation at two wavelengths having one polarization.

12-26. (cancelled)

27. (currently amended) A method of fabricating an optical fiber laser, the method consisting of the step of exposing an optical fiber to a transverse writing light beam to form a grating structure in a section of the optical fiber, the writing light beam being polarized in a direction not parallel to the axis of the section of the optical fiber so that the induced grating structure has a different grating strength for two orthogonal polarization modes of the optical fiber, the grating structure having ~~comprising~~ a discrete phase shift which is substantially identical for the two orthogonal polarization modes.

28. (currently amended) A method according to claim [[1]] 27, in which the writing light beam is polarized in a direction substantially perpendicular to the axis of the section of the optical fiber.

29. (currently amended) A method according to claim [[1]] 27, in which the writing light beam is an ultraviolet beam.

30. (previously presented) A method according to claim 29, in which the ultraviolet beam has a wavelength of about 244 nanometers.

31. (currently amended) A method according to claim [[1]] 27, in which the optical fiber section is doped with at least one amplifying dopant.

32. (previously presented) A method according to claim 31, in which the optical fiber section is doped with at least one rare earth element.

33. (currently amended) A method according to claim [[6]] 32, in which the optical fiber section is doped with erbium and ytterbium.

34. (currently amended) A method according to claim [[1]] 27, wherein the optical fiber laser is stressed to provide substantially single polarization operation.

35. (currently amended) A method according to claim [[1]] 27, wherein the optical fiber laser is stressed to provide dual polarization operation.

36. (currently amended) A method according to claim [[1]] 27, wherein the grating structure is written as a Moire phase shifted structure to provide lasing operation at two wavelengths having one polarization.

37. (currently amended) A method according to claim [[1]] 27, wherein the grating structure is written as first and second overlaying DFB grating structures to provide lasing operation at two wavelengths having one polarization.

38. (New) A method according to claim 1, wherein the movement is carried out such that at least a majority of grating lines from the grating structure are generated by exposure to different respective regions of the writing light beam.

39. (New) A method according to claim 27, wherein the grating structure is a DFB grating structure.

40. (New) A method according to claim 27, wherein the grating structure is formed without tuning of the discrete phase shift.